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May 18, 1959

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Dear Sir:

The purpose of this letter is to set forth (costs of changes) requested by the Government on the referenced contract. These changes are in addition to those presented previously. Details of the changes are given below and a cost summary is included as Attachment A.

1. In January 1959 Government representatives requested a change in three of the four transmitting frequencies. All ten units had to be returned to these new frequencies. The change required additional effort as follows:

- Calculate and order new crystals
- Recalculate and insert new trimmer capacitors in the power amplifier.
- Repeak the antenna loading coils.
- Remake antenna loading coil forms and rewind coils; old coils had to be disassembled.

2. The customer requested the addition of a BNC connector to the front panel for an antenna matching network. The smallest BNC connectors were too long for the space and had to be trimmed. In addition, the crystal oven indicator light had to be moved and a new hole made in the panel.

A request was also made that the output of the power amplifier be matched to a 50 ohm line, which required changing the power amplifier capacitors.

3. An overall schematic which our proposal assumed would be available was never furnished. The manual on the RP/TB-16 test power supply contained a block diagram type schematic which was used showing interconnecting lines between units (Fig. 4-12). However, when troubleshooting the panels

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it was found that this diagram called for connections to plugs which did not exist on the schematics of the individual units. In order to connect Fig. 4-12, it was necessary to reconstruct from theory the connections necessary to make the unit operative. A number of changes were required on panels already wired.

4. Plugs on both power supplies were reversed from orientation shown on customer's assembly drawings. The input terminal block was over-width on the High Voltage power supply and had to be hand filed to bring it to dimensions. The HV power supply contained a relay that was already wired into the timer. This relay had to be shortened to make the unit operative.

5. The latest drawings furnished by [] contained the following errors:

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a. Location of the idler cluster gear was incorrect, causing the gears to bind. This was corrected by making the idler cluster gear mounting arm adjustable, which necessitated disassembly of the unit and the enlargement of the locating hole in the upper plate.

b. The new design tape take-up spool has an adjustable slip clutch. No clearance was provided for the adjusting nut. Since machining clearance on the motor housing required complete disassembly, new clutch springs were made of a thinner material so that the adjusting nut could be turned high enough to clear the motor housing mounting flange.

c. The bend specified on the initiate switch actuator is incorrect. In order to make the switch operative, the actuator was rebent and adjusted after assembly.

d. The Write switch bracket interferes with adjustment of the commutator. These were rebent and filed to fit.

e. The upper tape supply and tape take-up reel bearing were too long. .018 inch had to be removed from each bearing to permit the parts to mate.

6. When costs were developed on the panels, frames and bottom plates of the instrument case, it was planned to obtain castings from the same source as [] and use their pattern equipment. This was to result in a saving to the Government, in both money and time. After negotiating for over a month, it became necessary to find another means of producing these items. [] had 7 cast panels after an old design which they furnished to us at no cost. These were cleaned up and partially machined to determine their usability.

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In all cases it was found that some revised dimensions adversely affected the plates and in all cases the panels were too thin. They were abandoned and the new plates were machined from solid plate.

The only alternate to the cast frames was to fabricate from extruded channel. Here the costs exceeded, by a considerable amount, the cost of the cast frame. The cast frame would have required only machining two surfaces and drilling and tapping mounting holes. The fabricated frame required fabrication, machining top and bottom machining clearance for "rivnuts", drill, countersink and installation of "rivnuts".

7. The Exciter R4 unit was not designed by [] until October 1958 and a schematic was not furnished until late November. No mechanical or detailed drawings were made available until late December. Components were ordered from the schematic. Chokes were not specified on the schematic except for inductance values. Because of an ordering deadline, after exhausting all possible sources of information on the chokes, the inductances specified on the schematics were sent to [] and the chokes ordered. Drawings of the pie and choke did not specify inductance. The assembly drawing calling for NYT chokes was not received until two weeks after our order for chokes was placed. Specifications for the pie wound choke and the filament choke were not received until the R4 unit was returned from [] in March.

In addition, the only information available for winding coils was that given on the schematic. Unknown factors were "Q", size of wire, etc. After receiving the unit back in March, a drawing was received giving the coil winding data. The coils had to be rewound to get necessary bandwidth. However, even the data on the drawing had to be reworked because the number of turns given did not give the inductances specified. This entailed considerable "cut and try" to obtain specified values. This work was quite difficult because of limited space and the heat sink grounds which prevented direct wiring to the ground.

Two of the mechanical drawings (321515 and 321512) were in error, requiring refabrication of some parts.

8. The luminescent paint specified for the panels is unusable as engravers paint on painted surfaces. This paint contains a vehicle that is absorbed by either enamels or lacquers. As a result, the surplus paint that must be removed when filling engraving damages the background paint. It is satisfactory on anodized or unpainted surfaces only. Several panels had to be stripped and repainted before acceptable engraving was realized.

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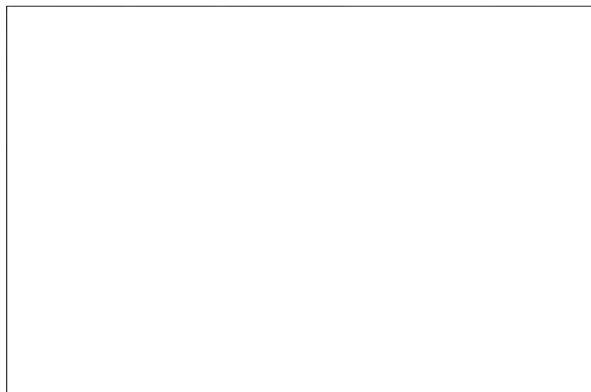
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It is requested that the contract be modified to increase the authorized costs by the revised total amount:

Previously submitted changes	\$25, 202
Present changes	11, 107
Total	\$36, 309

Very truly yours,



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